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REMARKS

Claims 1, 10 and 20 are amended. Claims 1-20, as amended, remain in the application with Claims 3-18 and 13-18 withdrawn. No new matter is added by the amendments to the claims.

The Rejections:

In the Office Action dated August 28, 2006, the Examiner rejected Claims 1, 2, 9-12, 19, and 20 under 35 U.S.C. 102(b) as being anticipated by Huang et al. 6,286,656. The Examiner stated that Huang discloses a method for stacking cases on a pallet per claimed invention. The method comprises the steps of: supplying cases to a buffer 16 in a random order (at least column 8, second full paragraph); defining stacking rules or stacking principles for selecting cases from the buffer to be placed on respective pallet; determining physical characteristics of cases in the buffer including dimensions of a case base and case height; determining available locations on the pallet where a case in the buffer can be placed (at least column 8, lines 33-67); using physical characteristics of cases in the buffer and applying the stacking rules to at least a portion of the buffer cases; identifying a selected buffer case that satisfies at least one of the rules and a corresponding position on the pallet for the selected case; and using an industrial robot 17 (Figure 1) to place the selected case on the pallet at the corresponding position.

The Examiner further stated that the Huang method comprises:

reapplying the previously determined stacking principle (i.e. corner-fit) before applying another stacking principle to a buffer case (i.e. stability-fit);

method step of determining available positions on the pallet by continually updating available regions on the pallet where a buffer case can be placed as cases are placed on the pallet. Huang et al. '656 continually replenishes the buffer 20 with cases after a buffer case is placed on the pallet;

applying the stacking rules sequentially in a variable prioritized order (i.e. corner-fit first and stability-fit) to at least a portion of the buffer cases and the available locations;

repeatedly applying the rules in a variable prioritized order to the buffer cases, repeatedly selecting for placement on the pallet a case that satisfies a stacking rule, repeatedly placing each case on the pallet in the corresponding location until the platform is filled with cases, supplying

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an unfilled pallet 11, and continually replenishing the buffer 16 with cases after a buffer case is placed on the pallet; and

identifying physical characteristics of at least one case in the pallet including the case height, identifying one of the pallet cases having a case height equal to a case height of a selected buffer case and a corresponding position adjacent the one pallet case for the selected case, and using an industrial robot to place the selected case on the pallet.

The Examiner rejected Claims 1, 2, 9-12, 19, and 20 under 35 U.S.C. 102(b) as being anticipated by Van Durrett et al. 5,501,571. The Examiner stated that Van Durrett discloses a method for stacking cases on a pallet per claimed invention. The method comprises the steps of: supplying cases to a buffer 20 in a random order (column 1, lines 30-45); defining rules for selecting cases from the buffer 20 to be placed on respective pallet (full layer rule, height/weight rules for stability, and/or exception case rule); determining physical characteristics of cases in the buffer including dimensions of a case base and case height; determining available locations on the pallet where a case in the buffer can be placed (Figures 7-24); using physical characteristics of cases in the buffer and applying the rules to at least a portion of the buffer cases; identifying a selected buffer case that satisfies at least one of the rules and a corresponding position on the pallet for the selected case; and using an industrial robot 90 to place the selected case on the pallet at the corresponding position (Figures 7-24).

In regards to Claim 2, the Examiner stated that the Van Durrett method further comprises reapplying the previously determined rule (i.e. weight rule control loop) before applying another rule to a buffer case.

In regards to Claim 9, the Examiner stated that the Van Durrett method step of determining available positions on the pallet further comprises continually updating available regions on the pallet where a buffer case can be placed as cases are placed on the pallet; and continually replenishing the buffer 20 with cases after a buffer case is placed on the pallet (Figure 1A).

In regards to Claim 10, the Examiner stated that the Van Durrett method further comprises applying the rules sequentially in a variable prioritized order (i.e. heavy cases first) to at least a portion of the buffer cases and the available locations.

In regards to Claim 11, the Examiner stated that the Van Durrett method further comprises repeatedly applying the rules in a variable prioritized order to the buffer cases;

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repeatedly selecting for placement on the pallet a case that satisfies a rule; and repeatedly placing each case on the pallet in the corresponding location until the platform is filled with cases; supplying an unfilled pallet 99; and continually replenishing the buffer 20 with cases after a buffer case is placed on the pallet (Figure 1 A).

In regards to Claim 12, the Examiner stated that the Van Durrett method further comprises reapplying the previously determined rule (i.e. weight rule control loop) before applying another rule to a buffer case.

In regards to Claim 19, the Examiner stated that the Van Durrett method step of determining available positions on the pallet further comprises continually updating available regions on the pallet where a buffer case can be placed as cases are placed on the pallet.

In regards to Claim 20, the Examiner stated that the Van Durrett method further comprises determining physical characteristics of at least one case in the pallet including known case height (height dimension of the case as it is being loaded on the pallet and the maximum allowable height for each layer of cases on the pallet); identifying a pallet cases having a case height equal to a case height of a selected buffer case and a corresponding position adjacent the one pallet case for the selected case; and using an industrial robot to place the selected case on the pallet (Figures 15, 21).

The Response:

Applicants reformatted the claims to place the steps in a “hanging paragraph” indented style for better readability. No amendments were made to the wording of the claims to achieve the current formatting.

37 CFR 1.104(c)(2) states that in rejecting claims for want of novelty or for obviousness, the Examiner must cite the best references at his or her command and, when a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The Huang patent includes 117 drawing figures and 52 columns of description. Except for the “supplying” and the “determining available locations” steps of Claim 1, the Examiner failed to identify any particular part of Huang relied upon for the rejection of the other method steps of Claims 1, 2, 9-12, 19, and 20. Therefore, the following remarks are based upon Applicants’ “best guess” as to the parts of Huang relied upon by the Examiner.

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The Examiner rejected Claims 1, 2, 9-12, 19, and 20 under 35 U.S.C. 102(b) as being anticipated by Haung. Haung uses one rule, the best box -corner combination, to decide which case to use and where. It evaluates all cases in various orientations for all corners (potential placement locations) on the pallet. It uses an evaluation process to score each combination and then picks the best one. The stability "Rule" cited by the examiner is not another method to choose a case. It is a qualification for the current chosen case-corner combination.

The Examiner stated that Haung chooses a case by identifying one of the pallet cases that had a height equal to a height of one case in the buffer and choosing a position adjacent to the case on the pallet. This is incorrect. Haung only uses adjacent height as a scoring criterion and calls this Leveling Package count, as explained in Col 32, lines 13-52.

Thus, Haung continues to evaluate a package for the "best" placement even if the package qualifies for placement in other positions. Therefore, Haung does not identify a package for placement based upon satisfaction of any of a set of rules organized in a predetermined order.

The Examiner rejected Claims 1, 2, 9-12, 19, and 20 under 35 U.S.C. 102(b) as being anticipated by Van Durrett. Van Durrett delivers boxes to a conveyor 20 in a random order. The boxes pass through a weighing, dimensioning and scanning module (WDS) 30 that weighs each box, determines its dimensions, and scans its bar code for contents. The WDS information is sent to a processor 70 to determine the pallet configuration and to instruct a queuing module 50 to pull certain boxes and then return them to the conveyor 20 so that the boxes are queued in a proper pallet loading sequence. A robot arm 90 then picks the next box on the conveyor 20 at a pick-up point 80. Thus, the determination as to where to place each box on the pallet is made between the WDS 30 and the queuing module 50.

Fig. 6 of Van Durrett shows the method of building a new pallet wherein the heavy boxes have been queued first 108 and are used to build layers 110 until the maximum height/weight is reached 184 or half of the maximum height has been reached 186 whereupon light boxes are used to complete the pallet 188 by building light layers 192. Thus, the method shown in Figs. 5-24 is a predetermined order of decision points that function with a plurality of boxes that have been organized prior to presentation for placement on the pallet. The method selects the type of box needed next and requests that box from the queue.

The Examiner stated that Applicants' argument that Van Durrett does not anticipate the instant claims because the claimed invention does not reorder cases on the conveyor per Van

Durrett is not persuasive because the claim language does not specifically exclude any reordering of cases. Applicants amended Claims 1, 10 and 20 to clarify that the step of supplying cases to a buffer in a random order includes doing so without reordering the cases prior to placement on a pallet. As stated above, Van Durrett queues (reorders) the boxes on the conveyor in a proper pallet loading sequence. Thus, Van Durrett does not show the "supplying cases" step of Applicants' amended Claims 1, 10 and 20.

It is the Examiner's position that the Van Durrett method of choosing locations for a box per various partitions plans is interpreted as including configurable rules. The Examiner stated that as each decision is being made, it would have to abide by a set of rules.

Applicants amended Claims 1 and 10 to clarify the step of "identifying a selected buffer case that satisfies any one of the rules". Applicants' rules are organized in a control algorithm for serial execution by the computer and application in a predetermined order, each rule being designed to address a particular aspect of producing a stable, compact stack of palletized cases. Rather than make the same decision by evaluating various factors during each execution of the control algorithm, each rule was designed to evaluate a unique condition that might arise. For example, the Full Layer rule evaluates whether a number of cases are available in the buffer and a single flat surface is available and whether an interlocked pattern can be made. In this manner, a pattern can be generated that covers the available space and leaves a new flat surface for subsequent cases. Each rule was designed to maximize the use of the pallet while maintaining stability. The priority of the rules determines the order in which the conditions are checked. (See Page 7, Lines 7-17; Fig. 2) When a case satisfies any one of the rules (step 54 in Fig. 2) and a corresponding position is found (step 56 in Fig. 2), the selected case is placed on the pallet (step 60 in Fig. 2).

The Examiner identified the Van Durrett rules as including a "full layer rule", "height/weight rules for stability" and/or an "exception case rule". Van Durrett does not use the term "rule" and the Examiner failed to identify any particular part of Van Durrett relied upon for the rejection.

Van Durrett shows in Figs. 7-24 logic/flow diagrams for building a new pallet. The pallet building process includes numerous decisions and uses partition plans which are described as a method of breaking the pallet into two sections and mapping boxes onto each section. The maps are changed as to the best loading sequence and optimal location on the pallet as each carton on

the conveyor is located, weighed and measured. Van Durrett positions a case in the map based upon satisfying several decisions, but that case can be moved in the map prior to the pallet loading sequence being organized. It is only after all the cases have been mapped that the cases are placed on the pallet. Therefore, Van Durrett does not place a selected buffer case on the pallet before identifying another buffer case.

In view of the amendments to the claims and the above arguments, Applicants believe that the claims of record now define patentable subject matter over the art of record. Accordingly, an early Notice of Allowance is respectfully requested.

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